## REMARKS

### Claim Rejection Over 35 U.S.C. § 102

Claims 1, 4, 5, 17 and 21 were rejected as being anticipated by Faulk (5,706,182). Faulk discloses converter topologies with multiple windings in Figs. 2-4. Those converter topologies include loss free impedances (L1, L4), filter capacitors (C2, C3) a transformer, electronic devices (SW1, SW2), a rectifier (DF), an output capacitor (COUT), and a load connected to the output capacitor.

Applicants respectfully point out that there are fundamental differences between the converters disclosed by Faulk and the power supply claimed by applicants, including the function and implementation of some of the above-mentioned elements of the Faulk patent as compared to the corresponding elements of applicants' power supply, and also the principle of operation.

One of the differences between the Faulk patent and applicants' invention is that the converters disclosed by Faulk receive and convert DC power. This is discernible from Fig. 8. That figure shows that the primary power source of converter 800 is the rectified line voltage (rectified by the full-wave rectifier 120), i.e. a DC voltage source. Also, the output power is always DC.

On the other hand, as stated in claim 1, applicants' power supply is powered from an AC source, without any rectification. The output voltage in applicants' invention can be either AC or DC (when equipped with rectifiers and a capacitor, as described in claim 5 and when the load is connected in parallel with the capacitor as described in claim 6), while the output voltage of the converters in the Faulk patent is always DC.

Another difference between the Faulk patent and applicants' invention is in the connection and function of the loss free impedances. In the Faulk patent the loss free impedance is either connected between the DC input voltage source and an electronic device (see Figs. 2 to 4) or between the junction of C3 and a diode and the output capacitor C4 (see Fig. 2B; note that the straight downward line between the junction of C3 and L4 is an error—that line should be a diode, otherwise the circuit cannot work as a converter). In applicants' invention the loss free impedance is connected directly between an AC input voltage source and the electronic device. For clarity this is explicitly stated in the currently amended claim 1. Applicants' invention does not use a loss free impedance that would be equivalent to L4. The purpose of the loss free impedance L4 in the Faulk patent is to filter out the pulsation of the voltage present at the junction of C3 and L4. Applicants' invention shows no output filter inductor.

The purpose of the capacitor C2 (in Fig. 2B) of the Faulk patent is to prevent the DC voltage applied to the left terminal of L1 to appear on the transformer winding labelled L2. There is no need for such a capacitor in applicants' invention, in part because the voltage applied to the left side of the loss free impedance 101 (in Figs. 1A, 2 and 6) is AC.

The purpose of the capacitor C3 (in Fig. 2B) of the Faulk patent is to prevent the DC voltage that is present across C4 to appear on the transformer winding labelled L3. There is no need for such a capacitor in applicants' invention because the output dc voltage can never appear across a transformer winding due to the fundamentally different circuit configuration.

The functions of the transformers in the Faulk patent are to galvanically isolate and scale the chopped DC voltage that is generated by the electronic device SW (Fig. 2A), SW1' (Fig. 2B), or SWA (Fig. 3A) and capacitively coupled by Ci (Fig. 2A), C2 (Fig. 2B) or Ci' (Fig. 3A) to the left winding of the transformer. The isolation and scaling functions of the transformer are commonly used in most converter and power supply circuits, including applicants' invention. In that invention, however, an additional, uncommon, function of the transformer is to implement the loss free inductive impedance necessary for the power regulation; this is achieved by constructing the transformer such that it has considerable leakage inductance. Furthermore, the transformer in applicants' invention is fed by the AC power source and not by a chopped DC voltage as in the Faulk patent.

The function and operation of the electronic devices SW1 and SW2 in the Faulk patent and the electronic devices 148-151 in applicant' invention are quite different. In the Faulk patent those devices act as choppers to generate a chopped DC voltage for the transformer from the input DC voltage. In applicants' invention the electronic devices generate a square-wave voltage from the DC voltage that appears on the output capacitor 104. That square-wave voltage is phase-shifted against the incoming AC voltage and is used for the combined regulation of the AC power appearing between terminals 165 and 166 in Fig. 2 and the DC power appearing between terminals 163 and 162 in Fig. 2.

The purpose of the rectifier DF of the Faulk patent is to convert the AC voltage of the output winding of the transformer into a DC voltage. In applicants' invention the electronic devices 148-151 act as a square-wave generator for terminals 165 and 166, a DC rectifier for terminals 163 and 162, and also as a power regulator.

Based on the above discussed fundamental differences, applicants submit that their invention cannot be anticipated by the Faulk patent.

**Conclusion and Request**

Applicants proved that the invention cannot be anticipated by the Faulk patent (5,706,182), because that patent discusses fundamentally different structures, and the elements in that patent have different functions. Thus the rejection of the claims 1, 4, 5, 17 and 21 on the basis of that patent is overcome. Accordingly, applicants submit that all claims of the amended application are now in full condition for allowance, which action applicants respectfully solicit. If the examiner agrees but does not feel that the present claims are technically adequate, applicants respectfully request that the examiner write acceptable claims pursuant to MPEP 707.07(j).

Very respectfully,

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